

## A New Species of Scorpion of the Buthidae: *Centruroides pantheriensis*

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This is a case of a new species of scorpion first being recognized by a physiological characteristic. When the first specimen was received from Big Bend National Park, Texas, it was identified as *Centruroides sculpturatus* Ewing. At the same time a request was made for more scorpions of that area since it was so far afield from this species' known range. Observation of juvenile forms revealed that the fifth caudal segment was of a dark brownish color which became lighter in succeeding molts. As a result, the fifth caudal segment in the adult appeared as though it were merely dirty. In all other respects, to the naked eye, the scorpion was an exact replica of *C. sculpturatus*. A test by biological assay of its venom indicated that it was more like that of *Centruroides vittatus* (Say) and *Centruroides chisosarius* Gertsch than *C. sculpturatus*.

### *Centruroides pantheriensis*, new species

*General Appearance:* Foundation color of trunk and cauda a yellowish-brown, often referred to as a straw-color because of the perfect blending of a specimen when resting on a bale of straw. Like *C. sculpturatus*, the adult has no readily observed markings such as dorsal stripes or spots. Fifth caudal segment slightly darker than other segments.

*Carapace:* Entire surface covered with coarse granules interspersed with fine granules. All margins equipped with a single row of coarse granules which are largest on the anterior margin, more uniform on lateral margins and most irregular on posterior margin. A ring of diffuse dark brown pigment circles the median eyes, becoming more dense in region of median furrow of ocular tubercle. Median groove well developed and passing rather deeply through ocular tubercle producing pronounced superciliary crests. Anteromedian edge broadly emarginate, making frontal lobes rather angular. Three lateral eyes on each

side of equal size, arranged in a straight line and flanked behind by row of coarse granules, many of which are darkly pigmented. Carapace shorter than fifth caudal segment as well as movable finger of pedipalps.

*Dorsal Preabdomen:* Complete, markedly granular, median keels on all terga except seventh on which this keel extends over only the anterior half. Seventh tergum has, in addition, two well granulated lateral keels on each side of tergum. No dark spots or stripes, or bands on either sex.

*Ventral Preabdomen:* Abdominal sterna, in the main, smooth except for seventh which bears four distinct keels with intercarinal spaces well granulated. Coarser granules found more laterally.

Middle lamellae of pectines unequal and oblong. Number of pectinal teeth: ♀ 25, ♂ 28. Male teeth somewhat larger than those of female and extended nearer to proximal end. Anterior and posterior margins of basal piece of male sub-parallel while posterior margin of basal piece of female extends caudally into a rounded lobe, thus making female basal piece longer than genital operculum. Female basal piece also has a short, distinctly marked transverse groove just above the middle. Genital papilla of male not conspicuous.

*Postabdomen:* Superior and inferior keels exceptionally granular and well developed on all segments except fifth. Median lateral keels entirely absent on this segment in both sexes. Male with all fifth-segment keels poorly developed which gives segment a cylindrical appearance. Female with all intercarinal spaces rather densely covered with coarse granules; male with granules not only smaller but fewer in number. Female with row of larger granules extending about two-thirds the distance anteroposteriorly on each side of inferior median keel of fifth segment; these granules less noticeable on male.

*Telson:* Vesicle, or ampulla, of female more globular in shape and somewhat more granular than on male. Both sexes only sparsely covered with moderate-sized to small bristles. Subaculear tooth-like protuberance present. Aculeus shorter than ampulla with distal half darkly pigmented.

*Pedipalps*: Fingers long and quite slender. Interior border of movable one with nine median oblique rows of granules. This includes a short apical row and the more indistinct proximal row. Latter may be indistinctly separate from one immediately distal to it; especially true on female. These rows flanked on each side by a row of granules that in the main are tooth-like; from 30–32 such granules on inner row. Most distal point of both movable and immovable fingers with a tooth-like granule much larger than any of other digital granules, and flanked on each side by a thin leaf-like membranous sheath and proximally by two darkly pigmented and very thick bristles. All four structures so closely compact as to give the general appearance of merely a large tooth-like structure. Pedipalps with well developed and heavily granulated keels. Intercarinal spaces of female with more and larger granules than male.

*Variations*: Second instar with fifth caudal segment a dark brown and contrasting strongly with rest of segments. Segments I–IV with only a dark median ventral stripe which gradually becomes fainter anteriorly. Sometimes, pigment around median eyes not formed into a diffuse ring at this stage. In those cases where it is, a diffuse streak may extend toward lateral eyes. Ridges of paired posterior median keels of carapace distinctly marked with dark brown pigment. In some cases, this fans out laterally in a rather diffuse manner. Above markings become less distinct in each succeeding instar until adult condition, as described, is reached. Second instar with entire aculeus a reddish brown which sometimes extends diffusely into ampulla. Subaculear protuberance appears as well developed, sharply pointed tooth. As scorpion gets older, this tooth-like condition changes to a more papular protuberance.

Pedipalps and other appendages of second instar with same general color or very slightly lighter than rest of body. Hands of pedipalps may or may not be slightly darker than fingers and other body parts.

*Related Species*: From standpoint of venom reaction this species is closely related to *C. vittatus* and *C. chisosarius*. In rats, a venom injection of 0.15 mg./100 gm. weight from any one of

these three species produces only a local swelling of fair proportions at site of injection. Leg receiving venom slightly favored; convulsions or drooling not produced. Venom, in same quantity, of *C. sculpturatus* and *C. gertschi* does not produce swelling at site of injection but does produce heavy drooling, violent convulsions and death within one hour.

As stated previously, *C. pantheriensis* closely resembles *C. sculpturatus* in overall appearance. Adults of new species differ in having fifth caudal segment very slightly darker in color than segments I-IV and a diffuse ring of pigment circles the median eyes. *C. pantheriensis* with fewer but larger coarse granules on carapace while on terga of preabdomen coarse granules fewer than on *C. sculpturatus*. On *C. pantheriensis* basal piece of the pectines same length or longer than genital operculum. On *C. sculpturatus*, basal piece shorter than operculum. Caudal segments and chela hands of pedipalps more robust in *C. pantheriensis* than in either *C. chisosarius* and *C. sculpturatus*. In color *C. chisosarius* differs from *C. pantheriensis* in having other areas besides median eyes marked with dark brown irregular maculations and in having preabdomen in both male and female marked with dark brown longitudinal bands. These bands less distinct on female, and in some preserved specimens may fade so as to be hardly perceptible.<sup>1</sup> *C. pantheriensis* entirely devoid of dark markings on the preabdomen in both sexes.

From a random sampling the average number of pectinal teeth are as follows: *C. pantheriensis* ♀ 24.9, ♂ 27.7; *C. chisosarius* ♀ 25.2, ♂ 27.1; *C. sculpturatus* ♀ 21.7, ♂ 24.1.

*Records:* All from Big Bend National Park, Texas. Holotype ♀ 1554, Panther Junction, 7/3/55 (collected by David J. Jones). Allotype ♂ 1620 (Danny Sholly and Bobby Sims) and six paratypes from same locality as holotype: ♀ 1544, 6/23/55 (Roy Curbow); ♂ 1536.2, 6/13/55 and ♀ 1561, 7/6/55 (D. J. Jones); ♂ 1549, 6/28/55 (George Miller); ♂ 1632, 8/17/55 (Roy Lassitor); ♀ 1553, 7/2/55 (Danny Sholly). Three paratypes from Boquillas Ranger Station: ♀ 1582, 7/29/55; ♀ 1534, 6/10/55; ♂ 1636, 8/22/55 (all by John Palmer). One paratype from Chisos Basin: ♂ 1623.1 8/8/55 (Earl Steel). Three

<sup>1</sup> All color determinations were made on living specimens.

paratypes from Boquillas Crossing: ♀ 1589.1, ♀ 1589.2, ♂ 1589.3, all on 7/30/55 (H. L. Stahnke). Two litters born in captivity. One ♀ with young taken. Also, twenty-two additional adults of both sexes.<sup>2</sup>

*Type locality*: Panther Junction, Big Bend National Park, TEXAS. *Holotype* found on bedroom floor of residence. *Allotype* found on cushion of chair on porch of another residence.

The name "pantheriensis" from Panther Junction, Big Bend National Park, Texas, was suggested by Assistant Superintendent David J. Jones. This species is abundant in and around the dwellings of this area.

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## Observations on the Feeding Behavior of Several Pselaphid Beetles

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### INTRODUCTION

Beetles of the family Pselaphidae are small predators which inhabit the floor strata of forests and prairies. Several reports have been made on the feeding habits of this family. The majority of these observations concern pselaphids that are associated with ants. *Ceophyllus monilis* LeC. has been observed eating a larva of the ant, *Lasius aphidicola* Walsh (Park, 1932). Park (1933) reports that *Tmesiphorus costalis* LeC. is a facultative synoekete in the nests of *Aphenogaster fulva* Rogers, where it preys upon the ant brood. *Batrisodes globosus* (LeC.) is reported to eat mites (Oribatidae, Hoplodermatidae, and Gamasidae), worms and broods of ants (Park, 1947). Park (1942) states that pselaphid beetles feed upon insect larvae, Collembola, and Acarina. Aside from this general statement, little is known about the feeding habits of non-myrmecophilic species.

<sup>2</sup> Additional data to be given in a forthcoming paper on "Scorpions of Big Bend National Park."